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| 10/026,583 | 12/18/2001 | Maurilio Cometto | ANDIP002 | 9533 |

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| EXAMINER | |
|---|---|
| JEAN GILLES, JUDE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2143 | |

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/026,583 | COMETTO ET AL. | |
| | Examiner | Art Unit | |
| | Jude J. Jean-Gilles | 2143 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 17- 23, 37-53, and 63-69* is/are rejected.

7)☒ Claim(s) *6-16,24-36 and 54-62* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

This Action is in regards to the RCE Reply received on 06/16/2006.

### *Response to Amendment*

1. This action is responsive to the application filed on 06/16/2006. Claims 1-69 are pending. Claim 1 has been amended. No new claims have been added. Independent claims 1, 22, 44, 63, and 67 represent a method and apparatus for "Network Congestion."

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1, 1, 22, 44, 63, and 67 have been carefully considered, but are not deemed fully persuasive. Applicant's arguments are deemed moot in view of the following new ground of rejection as explained here below

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 1-5, 17- 23, 37-53, and 63-69** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki, U.S. Patent No. 6,205,145 B1, in view of Black et al (hereinafter Black), Patent No. 6,614,796 B1.

Regarding **claim 1**, Yamazaki discloses the invention substantially as claimed. Although Li teaches method for controlling congestion at a network switch (fig. 3), the method comprising:

receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the network switch and the source node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49*);

characterizing traffic flow at the network (*see Li, column 11, lines 4-50; column 23, lines 1-36)*, wherein the network switch is a fibre channel switch (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49*); and

sending a first instruction from the network switch to the first intermediate switch for the first intermediate switch to control traffic from the source node to the destination node wherein the first instruction is based on the operation of characterizing of traffic flow at the network switch (*see Yamazaki;* figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49*). It is important to note *Yamazaki* does not specifically explain the details of the data being received from the source node to the destination node through a frame having a source identifier field corresponding to the source node and a destination identifier field corresponding to the destination node.

In the same field of endeavor, Black discloses a "... A connection response having the format of FIG. 14B is broadcast by a port that has serviced a camp list entry, and indicates that a connection may be initiated over a backplane data channel specified in field 302. A connection response results in the clearing of the requestor scoreboard for the requestor ID given in field 304 of the response frame, and it also results in setting the responder scoreboard for the destination port. The port that own the allocated channel and the channel number are entered into the age list on the initial allocation of the channel. A responder port that resides on the same switch chip as the requester, indicating a chip-local connection, must still broadcast a response frame so that the responder scoreboard is updated in all the other switch chips..." [*see Black, column 43, lines 54-63*].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Black's teachings of a method using a frame having a source identifier field corresponding to the source node and a destination identifier field corresponding to the destination node with the teachings of *Yamazaki*, for the purpose of storing the address identifier of the input frame and for comparing and output transmitted as stated by Yamazaki in lines 22-27 of column 4. By this rationale, **claim 1** is rejected.

Regarding **claim 2**, the combination Yamazaki -Black discloses the method of claim 1, wherein the first intermediate switch is an edge switch coupled to the source node (see Black; column 15, lines 34-67. Note the "hold back flow control" represents the message from the switch).

Regarding **claim 3**, the combination Yamazaki -Black discloses the method of claim 2, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (see Black; column 15, lines 34-67).

Regarding **claim 4**, the combination Yamazaki -Black discloses the method of claim 3, wherein the edge quench frame has a source identifier field corresponding to the destination node and a destination identifier field corresponding to the source node (see Black; column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 5**, the combination Yamazaki -Black discloses the method of claim 4, wherein the edge quench frame includes network switch congestion information (see Black; column 15, lines 34-67).

Regarding **claim 17**, the combination Yamazaki -Black discloses the method of claim 1, wherein characterizing traffic flow comprises checking the network switch queue level (see Black; column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 18**, the combination Yamazaki -Black discloses the method of claim 17, wherein characterizing traffic flow comprises determining whether to transmit path quench or edge quench frames (see Black; column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 19**, the combination Yamazaki -Black discloses the method of claim 18, wherein path quench frames are transmitted when the queue level exceeds a high threshold (see Black; column 18, lines 12-62).

Regarding **claim 20**, the combination Yamazaki -Black discloses the method of claim 19, wherein edge quench frames are transmitted when the queue level is between a high threshold and a low threshold (see Black; column 18, lines 12-62).

Regarding **claim 21**, the combination Yamazaki -Black discloses the method of claim 20, wherein the edge quench and path quench frames include a buffer level indicator (see Black; column 19, lines 24-67; column 20, lines 1-30).

Regarding **claim 22**, the combination Yamazaki -Black discloses a method for controlling traffic flow between first and second end nodes through first and second intermediate nodes, the method comprising:

transmitting a first frame having a source identifier corresponding to the first end node and a destination identifier corresponding to the second end node, wherein the frame is transmitted at a first intermediate node to a second intermediate node between the first intermediate node and the second end node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49)*;

receiving a second frame that was generated by the second intermediate node, the second frame having a source identifier corresponding to the second end node and a destination identifier corresponding to the first end node, wherein the second frame is received at the first intermediate node and includes instructions for the first intermediate node to adjust the current allowed rate from the first end node to the second end node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49)*; and

at the first intermediate node adjusting the current allowed rate from the first end node to the second end node upon receiving the second frame (see Black; column 13, lines 43-67; column 14, lines 1-43; column 18, lines 12-62).

Regarding **claim 23**, the combination Yamazaki -Black discloses the method of claim 22, wherein the current allowed rate can not exceed the maximum allowed rate.

Regarding **claim 37**, the combination Yamazaki -Black discloses the method of claim 22, wherein adjusting the current allowed rate comprises: determining that the second frame is a path quench frame (see Black; column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 38**, the combination Yamazaki -Black discloses the method of claim 37, wherein the current allowed rate is initially the maximum allowed rate (see Black; column 18, lines 12-62).

Regarding **claim 39**, the combination Yamazaki -Black discloses the method of claim 38, wherein the current allowed rate is reduced to 0 bps upon receiving an path quench frame (see Black; column 18, lines 2-62).

Regarding **claim 40**, the combination Yamazaki -Black discloses the method of claim 39, wherein the current allowed rate increases at a recovery rate (see Black; column 18, lines 12-62).

Regarding **claim 41**, the combination Yamazaki -Black discloses the method of claim 40, wherein the recovery rate is dynamically set (see Black; column 18, lines 12-62).

Regarding **claim 42**, the combination Yamazaki -Black discloses the method of claim 40, wherein the recovery rate is set based on information contained in the received path quench frame (see Black; column 18, lines 12-62).

Regarding **claim 43**, the combination Yamazaki -Black discloses the method of claim 42, wherein the recovery rate is set based on an input queue associated with the second intermediate node (see Black; column 18, lines 12-62).

Regarding **claim 44**, the combination Yamazaki -Black discloses a switch for controlling the traffic flow between a source node and a destination node, the switch comprising:

a first port for coupling to a first external node (fig. 4, item 106);

a second port for coupling to a second external node (fig. 4, item 102);

a first queue associated with the first port for receiving data from the first external node being sent to a third node that is reached through the second port and the second external node, the first queue including a first portion for holding data for transmission through the first port and a second portion for holding data for transmission through the second port (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49)*; and

a filter coupled to the first queue, the filter configured to receive data from the first queue and determine whether transmission of the data should be delayed based on information received from and generated by the second external node (see Black; column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 45**, the combination Yamazaki -Black discloses the switch of claim 44, further comprising a filter queues, wherein the filter queues are configured to hold data set for delayed transmission (see Black; column 39, lines 28-51).

Regarding **claim 46**, the combination Yamazaki -Black discloses the switch of claim 45, wherein each filter queue is associated with a flow (see Black; column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 47**, the combination Yamazaki -Black discloses the switch of claim 46, wherein the flow is traffic from a source node to a destination node (see Black; column 15, lines 34-67; column 21, lines 47-67; column 46, lines 5-38).

Regarding **claim 48**, the combination Yamazaki -Black discloses the switch of claim 47, wherein the first queue is a virtual output queue (see Black; column 12, lines 17-61).

Regarding **claim 49**, the combination Yamazaki -Black discloses the switch of claim 47, wherein each filter queue is associated with a priority (see Black; column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 50**, the combination Yamazaki -Black discloses the switch of claim 49, wherein each filter queue is associated with an input port and an output port (see Black; column 39, lines 53-67; column 40, lines 1-51).

Regarding **claim 51**, the combination Yamazaki -Black discloses the switch of claim 44, further comprising a rate limiter coupled to a filter queue (see Black; column 18, lines 12-62).

Regarding **claim 52**, the combination Yamazaki -Black discloses the switch of claim 51, wherein the amount of delay is determined by the rate limiter (see Black; column 18, lines 12-62).

Regarding **claim 53**, the combination Yamazaki -Black discloses the switch of claim 52, wherein the rate limiter uses token buckets (see Black; column 18, lines 12-62).

Regarding **claim 63**, the combination Yamazaki -Black discloses an apparatus for controlling congestion, the method comprising:

means for receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the network switch and the source node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49)*;

means for characterizing traffic flow at the network switch (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49)*; and

means for sending a first instruction from the network switch to the first intermediate switch to control traffic from the source node to the destination node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49).*

Regarding **claim 64**, the combination Yamazaki -Black discloses the apparatus of claim 63, wherein the first intermediate switch for the first intermediate switch is an

edge switch coupled to the source wherein the first instruction is based on the operation of characterizing of traffic flow at the network switch node (see Black; column 15, lines 34-67; column 23, lines 50-67; column 24, lines 1-18).

Regarding **claim 65**, the combination Yamazaki -Black discloses the apparatus of claim 64, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (see Black; column 15, lines 34-67).

Regarding **claim 66**, the combination Yamazaki -Black discloses the apparatus of claim 65, wherein the edge quench frame has a source identifier field corresponding to the destination node and a destination identifier field corresponding to the source node (see Black; column 43, lines 50-67; column 44, lines 1-23).

Regarding **claim 67**, the combination Yamazaki -Black discloses a computer readable medium for controlling congestion, the computer readable medium comprising:

computer code for receiving a frame having a source identifier field corresponding to a source node and a destination identifier field corresponding to a destination node, the frame having been transmitted to the network switch through a first intermediate switch between the network switch and the source node (*see* Yamazaki; figs. 8-10; *column 4, lines 21-27; column 7, lines 12-38; column 14, lines 32-47; column 8, lines 33-49*);

computer code for characterizing traffic flow at the network switch (see Black; column 35, lines 60-67; column 36; lines 1-59); and

computer code for sending a first instruction from the network switch to the first intermediate switch for the first intermediate switch to control traffic from the source

node to the destination node wherein the first instruction is based on the operation of characterizing of traffic flow at the network switch (see Black; column 46; lines 5-38).

Regarding **claim 68**, the combination Yamazaki -Black discloses the computer readable medium of claim 67, wherein the first intermediate switch is an edge switch coupled to the source node (see Black; column 15, lines 34-67).

Regarding **claim 69**, the combination Yamazaki -Black discloses the computer readable medium of claim 68, wherein the first instruction sent to the first intermediate switch comprises an edge quench frame (see Black; column 15, lines 34-67).

***Allowable Subject Matter***

5. **Claims 6-16, 24-36, and 54-62** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

6. **THIS ACTION IS MADE NON-FINAL**. Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-9000.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

JJG

August 02, 2006

DAVID WILEY
SUPERVISORY PATENT EXAMINER
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